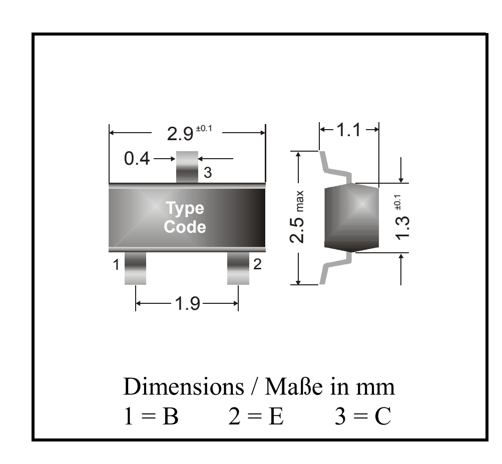
PNP | **Surface mount Si-Epitaxial PlanarTransistors**
**Si-Epitaxial PlanarTransistoren für die Oberflächenmontage** | PNP



Dimensions / Maße in mm
1 = B 2 = E 3 = C

Power dissipation – Verlustleistung 250 mW

Plastic case SOT-23
Kunststoffgehäuse (TO-236)

Weight approx. – Gewicht ca. 0.01 g

Plastic material has UL classification 94V-0
Gehäusematerial UL94V-0 klassifiziert

Standard packaging taped and reeled
Standard Lieferform gegurtet auf Rolle

**Maximum ratings ($T_A$ = 25°C)** **Grenzwerte ($T_A$ = 25°C)**

| | | | BCW 29, BCW 30 |
|---|---|---|---|
| Collector-Emitter-voltage | B open | $-V_{CE0}$ | 32 V |
| Collector-Base-voltage | E open | $-V_{CB0}$ | 32 V |
| Emitter-Base-voltage | C open | $-V_{EB0}$ | 5 V |
| Power dissipation – Verlustleistung | | $P_{tot}$ | 250 mW [1]) |
| Collector current – Kollektorstrom (DC) | | $-I_C$ | 100 mA |
| Peak Collector current – Kollektor-Spitzenstrom | | $-I_{CM}$ | 200 mA |
| Peak Base current – Basis-Spitzenstrom | | $-I_{BM}$ | 200 mA |
| Junction temperature – Sperrschichttemperatur | | $T_j$ | 150°C |
| Storage temperature – Lagerungstemperatur | | $T_S$ | - 65…+ 150°C |

**Characteristics ($T_j$ = 25°C)** **Kennwerte ($T_j$ = 25°C)**

| | | Min. | Typ. | Max. |
|---|---|---|---|---|
| Collector-Base cutoff current – Kollektorreststrom | | | | |
| $I_E = 0$, $-V_{CB} = 32$ V | $-I_{CB0}$ | – | – | 100 nA |
| $I_E = 0$, $-V_{CB} = 32$ V, $T_j = 100$°C | $-I_{CB0}$ | – | – | 10 µA |
| Emitter-Base cutoff current – Emitterreststrom | | | | |
| $I_C = 0$, $-V_{EB} = 5$ V | $-I_{EB0}$ | – | – | 100 nA |
| Collector saturation volt. – Kollektor-Sättigungsspg. [2]) | | | | |
| $-I_C = 10$ mA, $-I_B = 0.5$ mA | $-V_{CEsat}$ | – | 80 mV | 300 mV |
| $-I_C = 50$ mA, $-I_B = 2.5$ mA | $-V_{CEsat}$ | – | 150 mV | – |

[1]) Mounted on P.C. board with 3 mm² copper pad at each terminal
Montage auf Leiterplatte mit 3 mm² Kupferbelag (Lötpad) an jedem Anschluß
[2]) Tested with pulses $t_p$ = 300 µs, duty cycle ≤ 2% – Gemessen mit Impulsen $t_p$ = 300 µs, Schaltverhältnis ≤ 2%

**Characteristics ($T_j$ = 25°C)** **Kennwerte ($T_j$ = 25°C)**

| | | | Min. | Typ. | Max. |
|---|---|---|---|---|---|
| Base saturation voltage – Basis-Sättigungsspannung [1] | | | | | |
| $-I_C$ = 10 mA, $-I_B$ = 0.5 mA | | $-V_{BEsat}$ | – | 720 mV | – |
| $-I_C$ = 50 mA, $-I_B$ = 2.5 mA | | $-V_{BEsat}$ | – | 810 mV | – |
| DC current gain – Kollektor-Basis-Stromverhältnis [1] | | | | | |
| $-V_{CE}$ = 5 V, $-I_C$ = 10 µA | BCW 29 | $h_{FE}$ | – | 90 | – |
| | BCW 30 | $h_{FE}$ | – | 150 | – |
| $-V_{CE}$ = 5 V, $-I_C$ = 2 mA | BCW 29 | $h_{FE}$ | 120 | – | 260 |
| | BCW 30 | $h_{FE}$ | 215 | – | 500 |
| Base-Emitter voltage – Basis-Emitter-Spannung [1] | | | | | |
| $-V_{CE}$ = 5 V, $-I_C$ = 2 mA | | $-V_{BEon}$ | 600 mV | – | 750 mV |
| Gain-Bandwidth Product – Transitfrequenz | | | | | |
| $-V_{CE}$ = 5 V, $-I_C$ = 10 mA, f = 100 MHz | | $f_T$ | 100 MHz | – | – |
| Collector-Base Capacitance – Kollektor-Basis-Kapazität | | | | | |
| $-V_{CB}$ = 10 V, $I_E = i_e$ = 0, f = 1 MHz | | $C_{CB0}$ | – | 4.5 pF | – |
| Noise figure – Rauschzahl | | | | | |
| $-V_{CE}$ = 5 V, $-I_C$ = 200 µA, $R_G$ = 2 kΩ, f = 1 kHz, Δf = 200 Hz | | F | – | – | 10 dB |

| | | |
|---|---|---|
| Thermal resistance junction to ambient air<br>Wärmewiderstand Sperrschicht – umgebende Luft | $R_{thA}$ | 420 K/W [2] |
| Recommended complementary NPN transistors<br>Empfohlene komplementäre NPN-Transistoren | BCW 31, BCW 32 | |

| | | |
|---|---|---|
| Marking – Stempelung | BCW 29 = C1 | BCW 30 = C2 |

[1]) Tested with pulses $t_p$ = 300 µs, duty cycle ≤ 2% – Gemessen mit Impulsen $t_p$ = 300 µs, Schaltverhältnis ≤ 2%

[2]) Mounted on P.C. board with 3 $mm^2$ copper pad at each terminal
Montage auf Leiterplatte mit 3 $mm^2$ Kupferbelag (Lötpad) an jedem Anschluß